

Monthly Progress Report

July 15, 2019

To: Eric Winiecki, U.S. Environmental Protection Agency, Region 10

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cc: Rene Fuentes and Jennifer MacDonald, U.S. Environmental Protection Agency, Region 10
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**Re: Docket No. SDWA-10-2013-0080; Yakima Valley Dairies
June 2019 Monthly Progress Report**

This progress report describes activities performed in compliance with Docket No. SDWA-10-2013-0080 between June 11 and July 10, 2019. This progress report is submitted on behalf of the Yakima Valley Dairies (Dairies), including the following: 1) Cow Palace, LLC; 2) George DeRuyter & Son Dairy, LLC; D&A Dairy, LLC (also known as D and A Dairy, LLC); and George & Margaret, LLC; and 3) Liberty Dairy, LLC, and its associated dairy facility H&S Bosma Dairy.

1. Major Accomplishments and Issues

The current status of the lagoon lining and abandonment projects is as follows:

- **Liberty/H&S Bosma Dairies**
 - Lagoon abandonments at H&S Bosma Dairy are complete. The H&S Bosma Dairy Completion Report for Lagoon Nos. 8, 9, 19 and 20 Abandonments was submitted on July 8, 2019.
 - The Lagoon No. 6 100% Revised Basis of Design Report was submitted to the U.S. Environmental Protection Agency (EPA) on June 25, 2019. The submittal addressed EPA comments on the Lagoon No. 6 100% Basis of Design Report (EPA Letter 196).
 - The additional appendix to the Lagoon No. 10 Basis of Design Report was submitted to EPA on June 25, 2019. Additional edits to the figures and text of the Lagoon No. 10 Basis of Design Report were submitted to EPA on July 10, 2019 following receipt of EPA Letter 204.
 - Planned summer/fall construction for Lagoons 6 and 10 is being coordinated with H&S Bosma Dairy and the proposed contractors. Ag Pro Construction, Inc., is currently under contract with Liberty/H&S Bosma Dairies to conduct the lining projects at Liberty Dairy. Anchor QEA, LLC, anticipates that Ag Pro Construction will utilize the same subcontractor to

install the liner for both Lagoon No. 6 and Consolidated Lagoon No. 10 (Northwest Linings and Geotextile Products, Inc. [Northwest Linings]) that conducted lining projects at Liberty Dairy during previous years. Currently we estimate that construction will begin in August and installation of the liner will be conducted in early September.

- **Cow Palace**

- The 100% Basis of Design Report and associated lagoon lining documents were submitted to EPA on June 20, 2019, consistent with EPA comments on the 90% lagoon lining documents for the Safety Debris Catch Basin (EPA Letter 198).
- EPA comments and conditional approval of the 100% lagoon lining documents for the Safety Debris Catch Basin (EPA Letter 203) were received. A revised version of the 100% Basis of Design Report and associated lagoon lining documents incorporating revisions to the lagoon bottom slope and drawing text were submitted to EPA on July 10, 2019, consistent with those comments.
- Anchor QEA has been coordinating with the Washington State Department of Ecology (Ecology) Dam Safety Office regarding Cow Palace Lagoon No. 1. Anchor QEA submitted modeling and design review materials to Ecology on July 8, 2019. Anchor QEA is currently preparing a dam construction permit and final construction documents for submittal to Ecology by the end of July 2019.
- Currently, Anchor QEA anticipates that lining activities for both Lagoon No. 1 and the Safety Debris Catch Basin will be conducted by the same contractors (Hilmes Construction, Inc., and Northwest Linings) that conducted lining projects at Cow Palace during previous years. If this changes, Anchor QEA will provide the required notifications to EPA.
- At this time, the liner delivery schedule for Lagoon No. 1 and the Safety Debris Catch Basin is estimated as October 1, 2019. Initial construction (grading and lining preparation activities) will begin in September and lining will take place during October, 2019.

- **George DeRuyter & Son/D&A Dairies**

- Progress on the digester and nitrification/denitrification (NDN) system is described in Section 3. As described in that section, Lagoon No. 1 has been emptied, and installation of the in-pond equipment (air diffusers, baffle curtains and is pumping/recirculation and monitoring equipment) is underway. Biogas production and dissolved air flotation (DAF) production remain good. Filling of the lagoon with pre-treated DAF effluent is expected to begin by the week of July 22nd.

Agrimanagement, Inc., and Anchor QEA are coordinating on data validation for 2019 pre-plant soil and manure sampling activities and are on schedule to submit the 2019 Pre-Plant Dairy Application Field Report Memorandum for the Dairies to EPA by August 10, 2019.

Validation and reporting for the second quarter groundwater monitoring data are ongoing. Reporting is on schedule for these data.

2. Other Actions Taken to Comply with the Administrative Order on Consent

EPA provided comments on the 2018 Annual Report on July 10 (EPA Letter 202). Anchor QEA is reviewing the comments and will prepare an updated version of the Annual Report.

A number of draft deliverables have been submitted to EPA and are awaiting approval. Please let Anchor QEA know if EPA requires further information regarding these submittals. These deliverables are listed in Table 1.

3. George DeRuyter & Sons Dairy Nitrification/Denitrification System Update

This section summarizes the progress of the digester and DAF upgrades and the NDN system installation as follows:

- Biogas production and operation of the DAF unit and separator screens have both remained good during the past month.
- Baseline DAF effluent monitoring data have been collected. These data were shared with EPA in our status update letter and extension request dated July 3, 2019.
- Manure liquids and solids have been fully removed from Lagoon No. 1 in preparation for equipment installation. Dairy staff have re-shaped the sides and bottom of the lagoon and a survey has been completed to document as-built conditions.
- The NDN equipment is currently being installed within Lagoon No. 1. That equipment includes the air diffusers, curtain baffles, pumping/recirculation equipment and monitoring equipment.
- Filling of the NDN is expected to begin during the week of July 22nd. Equipment startup will be performed when the lagoon is about half filled. The influent/effluent performance monitoring period will begin when the lagoon is fully filled. Baseline DAF effluent monitoring will continue until that time.

Photograph 1
Ongoing Placement of NDN Equipment in Lagoon 1



Lagoon 1 has been emptied and re-shaped. Air diffusers have been installed, and curtain/baffle, pump/recirculation and monitoring equipment installation are ongoing. Filling of the lagoon with pre-treated DAF effluent is expected to begin the week of July 22nd.

4. Work in Progress

Table 1 outlines the updated deliverable schedule. Please note that completed deliverables referenced in Table 1 have been submitted to EPA but require final review and approval.

Table 1
Deliverable Schedule

Deliverable Name or Event	Date of Most Recent EPA Comment Letter (If Any)	Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter	Anticipated Start/End Date	On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5)
GROUNDWATER MONITORING (III.E)				
First Quarter 2017 Quarterly Groundwater Monitoring Data Report (Revised)	7/25/2017 (EPA Letter 154)	8/22/2017 (Revised per EPA Letter 154)	Complete	Submitted to EPA on 8/18/2017 (Cover: August 22, 2017)
Second Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft)	—	—	Complete	Submitted to EPA on 08/07/2017
Third Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft)	—	—	Complete	Submitted to EPA on 11/27/2017
Fourth Quarter 2017 Quarterly Groundwater Monitoring Data Report (Draft)	—	—	Complete	Submitted to EPA on 2/2/2018
Final Groundwater Monitoring QAPP	2/28/2018 (Conditional Approval, EPA Letter 164)	4/1/2018	Complete	QAPP revised and resubmitted to EPA on 3/8/2018
First Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft)	—	5/19/2018 (60 days following last sample collection date)	Complete	Submitted to EPA on 5/21/2018
Second Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft)	—	8/10/2018 (60 days following last sample collection date)	Complete	Submitted to EPA on 8/10/2018
Third Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft)	—	11/9/2018 (60 days following last sample collection date)	Complete	Submitted to EPA on 11/9/2018
Fourth Quarter 2018 Quarterly Groundwater Monitoring Data Report (Draft)	—	2/11/2019 (60 days following last sample collection date)	Complete	Submitted to EPA on 2/11/2019
First Quarter 2019 Quarterly Groundwater Monitoring Data Report (Draft)	—	5/20/2019 (60 days following last sample collection date)	Complete	Submitted to EPA on 5/21/2019

Deliverable Name or Event	Date of Most Recent EPA Comment Letter (If Any)	Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter	Anticipated Start/End Date	On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5)
Second Quarter 2019 Quarterly Groundwater Monitoring Data Report (Draft)	—	8/5/2019 (60 days following last sample collection date)	8/5/2019	Yes
IMMEDIATE SOURCE CONTROL ACTIONS (III.F)				
2017 Post-Harvest Dairy Application Field Reports	—	12/22/2017 (60 days from last sample collected)	Complete	Submitted to EPA on 12/19/2017
2018 Pre-Plant Dairy Application Field Reports	—	8/3/2018 (60 days from last sample collected)	Complete	Submitted to EPA on 8/3/2018
2018 Post-Harvest Dairy Application Field Report Memorandum	—	1/2/2019 (60 days from last sample collected)	Complete	Submitted to EPA on 1/2/2019
2019 Pre-Plant Dairy Application Field Report Memorandum	—	8/10/2019 (60 days from last sample collected)	8/10/2019	Yes
D&A Consolidated Lagoon No. 3 Completion Report	—	2/1/2018	Complete	Submitted to EPA on 2/1/2018
Liberty Dairy Consolidated Lagoon No. 15 Completion Report	—	2/1/2018	Complete	Submitted to EPA on 2/1/2018
Liberty Dairy Red Water Pond BODR – 100% Design Submittal and OMMP	10/22/2018 (EPA Letter 185)	11/19/2018	Complete	Submitted to EPA on 11/19/2018
George DeRuyter & Son Dairy As-Built Report for Stormwater Catch Basin	9/18/2019 (EPA Letter 182)	2/1/2019	Complete	Submitted to EPA on 1/31/2019
Cow Palace Completion Report for Northeast Catch Basin Abandonment	12/27/2018 (EPA Letter 188)	2/15/2019	Complete	Submitted to EPA on 1/31/2019
Liberty Dairy As-Built Report for Lining of Red Water Pond	10/22/2018 (EPA Letter 185)	2/1/2019	Complete	Submitted to EPA on 1/31/2019
H&S Bosma Dairy Lagoon No. 6 Basin of Design Report 100% Design Submittal	5/14/2019 (EPA Letter 196)	7/9/2019	Complete	Submitted to EPA on 6/25/2019
H&S Bosma Dairy Completion Report for Lagoon Nos. 8, 9, 19 and 20 Abandonments	12/27/2018 (EPA Letter 188)	7/1/2019 (Date is from extension request submitted 5/31/2019)	Complete	Submitted to EPA on 7/8/2019

Deliverable Name or Event	Date of Most Recent EPA Comment Letter (If Any)	Current Due Date (If Any) Established by AOC/Date Indicated in EPA Comment Letter	Anticipated Start/End Date	On Track to Meet Due Date/Start or End Date? (Yes/No; If No, Explain in Item 5)
Cow Palace Safety Debris Catch Basin 100% Basis of Design Report	7/1/2019 (EPA Letter 203)	7/29/2019	Complete	Submitted to EPA on 7/10/2019
H&S Bosma Dairy Modified Lagoon No. 10 BODR – 100% Design Submittal	7/9/2019 (EPA Letter 204)	8/16/2019	Complete	Submitted to EPA on 7/10/2019
Cow Palace Lagoon No. 1 As-Built Report	3/18/2019 (EPA Letter 189)	2/1/2020	2/1/2020	Yes
Cow Palace Safety Debris Catch Basin As-Built Report	3/18/2019 (EPA Letter 189)	2/1/2020	2/1/2020	Yes
H&S Bosma Lagoon Nos. 10, 11, and 13 Lining As-Built Report	3/20/2019 (EPA Letter 190)	12/1/2020	12/1/2020	Yes
H&S Bosma Lagoon No. 6 Lining As-Built Report	3/20/2019 (EPA Letter 190)	12/31/2020	12/31/2020	Yes
REPORTING (III.K)				
Monthly Progress Report	10/18/2018 (EPA Letter 184)	15th of each month (AOC)	15th of each month	Yes
2013 Annual Report (Revised)	12/30/2015 (EPA Letter 95)	2/27/2016 (EPA Letters 104, 116, 121, and 128)	Complete	Submitted to EPA on 11/18/2016
2014 Annual Report (Revised)	2/2/2016 (EPA Letter 101)	4/1/2016 (EPA Letters 109 and 128)	Complete	Submitted to EPA on 11/18/2016
2015 Annual Report (Revised)	1/3/2017 (EPA Letter 133)	1/31/2017 (EPA Letter 133)	Complete	Submitted to EPA on 1/31/2017
2016 Annual Report	—	3/1/2017	Complete	Submitted to EPA on 3/1/2017
2017 Annual Report (Revised)	3/21/2018 (EPA Letter 166)	4/18/2018	Complete	Submitted to EPA on 4/17/2018
2018 Annual Report	7/10/2019 (EPA Letter 202)	8/7/2019	8/7/2019	Yes

Notes:

—: not applicable

AOC: Administrative Order on Consent

BODR: Basis of Design Report

OMMP: Operations, Maintenance, and Monitoring Plan

QAPP: Quality Assurance Project Plan

5. Encountered Issues and Anticipated Actions

The adjustments to estimated completion dates for the lagoon abandonments at H&S Bosma Dairy and for the activation of the NDN treatment system at George DeRuyter & Son Dairy have been documented in status reports and extension requests submitted to EPA. Bosma lagoon abandonments have been completed, and the NDN system is nearing activation.

Delivery of the proprietary liner system for the scheduled Cow Palace lagoon lining work is currently anticipated for October 2019. We are working with the contractor and supplier to expedite the liner availability if possible to maximize the good-weather construction window for lining activities.

Any additional changes to anticipated construction completion dates will be discussed with EPA as part of ongoing construction meetings.

As discussed with EPA, there are two minor updates to the NDN testing QAPP that we believe are warranted to optimize data precision, accuracy and representativeness. These include the use of total nitrogen measurements rather than total Kjeldahl nitrogen measurements to estimate total nitrogen and total organic nitrogen, and the use of total phosphorus rather than total available phosphorus to measure phosphorus in the NDN influent and effluent. We anticipate submitting a QAPP amendment prior to startup of the 6-month NDN verification testing period.

6. List of Completed Administrative Order on Consent Work

Table 2 lists Administrative Order on Consent work that has been completed and approved by EPA.

Table 2
Work Product Status Update

Work Product	Submittal Date (Report Cover Date)	Status
PROVISION OF WATER (III.D)		
Residential Well Sampling QAPP (III.D.2)	4/26/2013	APPROVED
Residential Well Sampling Report	12/20/2013	APPROVED
GROUNDWATER MONITORING (III.E)		
Groundwater Monitoring Well Installation Report (III.E.2)	10/06/2014	APPROVED
Data Usability Report (III.A.3.e.(1)) ¹		
Third Quarter 2013	10/14/2015	APPROVED
Fourth Quarter 2013	10/14/2015	APPROVED
First Quarter 2014	10/14/2015	APPROVED
Second Quarter 2014	10/14/2015	APPROVED
Third Quarter 2014	10/14/2015	APPROVED
Fourth Quarter 2014	5/21/2015	APPROVED

Work Product	Submittal Date (Report Cover Date)	Status
First Quarter 2015	5/21/2015	APPROVED
Second Quarter 2015	10/14/2015	APPROVED
Quarterly Groundwater Monitoring Data Report (III.E.3)		
Third Quarter 2013	1/14/2016	APPROVED
Fourth Quarter 2013	1/14/2016	APPROVED
First Quarter 2014	1/14/2016	APPROVED
Second Quarter 2014	9/4/2015	APPROVED
Third Quarter 2014	1/14/2016	APPROVED
Fourth Quarter 2014	1/14/2016	APPROVED
First Quarter 2015	1/14/2016	APPROVED
Second Quarter 2015	1/14/2016	APPROVED
Third Quarter 2015	12/14/2015	APPROVED
Fourth Quarter 2015	3/31/2016	APPROVED
First Quarter 2016	5/31/2016	APPROVED
Second Quarter 2016	9/6/2016	APPROVED
Third Quarter 2016	3/20/2017 (Cover: March 2017)	APPROVED 4/3/2017
QAPP Addendum No. 1	11/10/2016 (Cover: November 2016)	APPROVED 1/13/2017
Fourth Quarter 2016	5/1/2017 (Cover: May 1, 2017)	APPROVED 5/26/2017
IMMEDIATE SOURCE CONTROL ACTIONS (III.F)		
Dairy Facility Application Field Management Plan(s) (III.F.1)	11/18/2013	APPROVED; revised DFAFMPs submitted to EPA on 5/31/2016; updated DFAFMPs submitted to EPA on 5/15/2018
2013 Post-Harvest Dairy Application Field Reports	8/29/2015	APPROVED
2014 Pre-Plant Dairy Application Field Reports	8/13/2015	APPROVED
2014 Post-Harvest Dairy Application Field Reports	8/14/2015	APPROVED
2015 Pre-Plant Dairy Application Field Reports	3/27/2017	APPROVED
2015 Post-Harvest Dairy Application Field Reports	3/27/2017	APPROVED
2016 Pre-Plant Dairy Application Field Reports	3/27/2017	APPROVED
2016 Post-Harvest Dairy Application Field Reports	1/3/2017 (Cover: January 3, 2017)	APPROVED 3/27/2017
2017 Pre-Plant Dairy Application Field Reports	7/31/2017 (Cover: July 2017)	APPROVED 8/1/2017
Irrigation Water Management Plan(s) (III.F.2)	8/15/2014	APPROVED
Lagoon Review Report(s) (III.F.6)	8/22/2013	APPROVED

Work Product	Submittal Date (Report Cover Date)	Status
Lagoon Evaluation Plans (III.F.6)	2/6/2015	NOT REQUIRED; Dairies elected to line lagoons
Cow Palace Lagoon Work Plan (III.F.6)	3/11/2016	APPROVED
Cow Palace Lagoon QAPP (III.F.6)	3/11/2016	APPROVED
Cow Palace NW Catch Basin 100% Design (III.F.6)	6/20/2016	APPROVED
Liberty/H&S Bosma Dairies Modified Lagoon Work Plan (III.F.6)	11/10/2016 (Cover: November 2016)	APPROVED 1/6/2017
George DeRuyter & Son/D&A Dairies Lagoon Work Plan (III.F.6)	11/10/2016 (Cover: November 2016)	APPROVED 1/6/2017
Final BODR, Liberty Dairy Consolidated Lagoon No. 15, 100% Design	7/20/2017 (Cover: July 19, 2017) 08/17/2017 (Mods cover: August 11, 2017)	APPROVED WITH MODIFICATIONS 7/25/2017
Final BODR, D&A Dairy Consolidated Lagoon No. 3, 100% Design	7/20/2017 (Cover: July 19, 2017) 08/17/2017 (Mods cover: August 11, 2017)	APPROVED WITH MODIFICATIONS 7/25/2017
H&S Bosma Dairy Modified Lagoon No. 10 BODR – 100% Design Submittal and Abandonment Plan for Lagoon Nos. 8, 9, 19, and 20	8/29/2018 (Cover: August 29, 2018)	APPROVED 9/18/2018
H&S Bosma Dairy Lagoon No. 10 OMMP	8/29/2018 (Cover: August 29, 2018)	APPROVED 9/18/2018
George DeRuyter & Son Dairy Stormwater Catch Basin and D&A Dairy Lagoon Nos. 1 and 2 Modified BODR – 100% Design Submittal	8/29/2018 (Cover: August 29, 2018)	APPROVED 9/18/2018
Cow Palace Abandonment Plan for Northeast Catch Basin	9/10/2018 (Cover: September 11, 2018)	APPROVED 9/12/2018
Liberty/H&S Bosma Dairies Lagoon Pre-Design Data Collection QAPP (III.F.6)	1/27/2017 (Cover: January 26, 2017)	APPROVED 2/2/2017
George DeRuyter & Son/D&A Dairies Lagoon Pre-Design Data Collection QAPP (III.F.6)	1/27/2017 (Cover: January 26, 2017)	APPROVED 2/2/2017
George DeRuyter & Son Dairy Stormwater Catch Basin NDN QAPP	10/30/2018 (Cover: October 2018)	APPROVED 3/21/2019
REPORTING (III.K)		
Monthly Progress Reports (III.K.1)	15th of the following month	Current through the current month.
Health and Safety Plan	9/13/2016 (Cover: September 2016)	Current version ²

Notes:

1. Following the second quarter of 2015, Data Usability Reports are no longer required as separate deliverables.

2. This is the current version of the project Health and Safety Plan. EPA does not provide formal review and approval of the Health and Safety Plan, though it is provided for use. The Health and Safety Plan will be updated periodically if applicable to address additional work or field activities.

BODR: Basis of Design Report

DFAFMP: Dairy Facility Application Field Management

OMMP: Operations, Maintenance, and Monitoring Plan

QAPP: Quality Assurance Project Plan